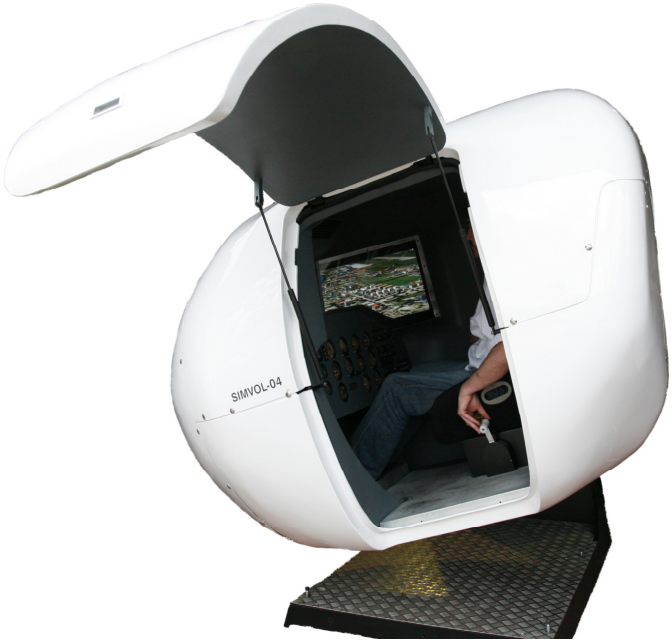
OVO-04

USER'S MANUAL



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INDEX

1. UNPACKING AND PLACEMENT

1.1 Power socket

2. IDENTIFICATION ELEMENTS OF SIMULATOR

3. COMPUTER CABINET

4. PLC & TROUBLESHOOTING

5. REMOTE MOVEMENT OF CABIN

6. LATERAL CONTROL PANEL

7. SOFTWARE ADJUSTMENT OF CABIN MOVEMENT (FS-Unitronics)

8. SOFTWARE ADJUSTMENT OF CONTROL HANDLES AND LIGHTING

9. SECURITY SYSTEMS

9.1 SECURITY DETECTOR SAFETY PERIMETER

9.2 EMERGENCY PUSH-BUTTON

9.3 CABIN DOOR CLOSED DETECTOR

9.4 S.A.I (U.P.S.)

9.5 VENTILATION SYSTEM

10. CHANGING LOCATION OF THE OVO-04

11. MAINTENANCE

12. WHAT IS NEW IN THIS USER'S MANUAL VERSION

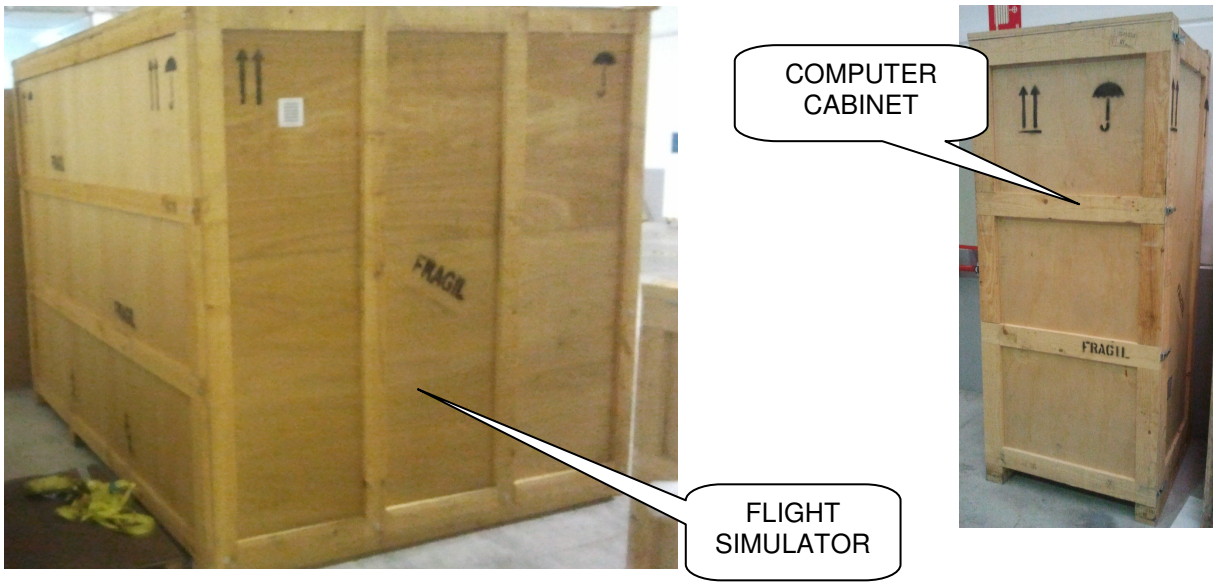
"CE" DECLARATION OF CONFORMITY

1. UNPACKING AND PLACEMENT

The tools that should be used when unpacking and placement:

- 1 or 2 15mm to 19mm set of wrenches preferably ratchet wrench
- 1 knife or box cutter
- 1 pliers or saw to cut metal tape
- A 1500 kg or more motorized forklift
- 1 set of extensions for the forks of the forklift till they reach a 130cm. in length
- A set of Allen keys (8mm is the most used)
- Lift pallet truck with 150cm. fork (optional)

The flight simulator OVO-04 is delivered in 2 wooden boxes, the largest box contains the full motion "Flight Simulator" the other box contains the "Computer Cabinet"

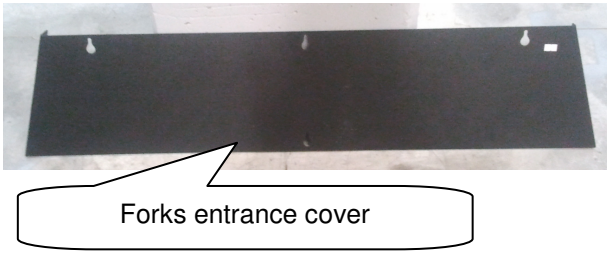


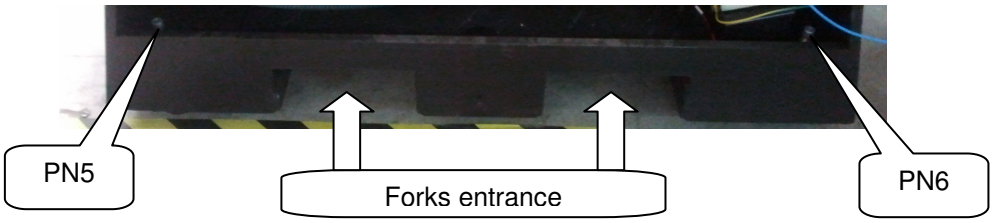
When unloading the boxes, it is important to place the larger box so that the side indicated as (DOOR/PUERTA) is fully accessible with a 1500 kg or more motorized forklift.

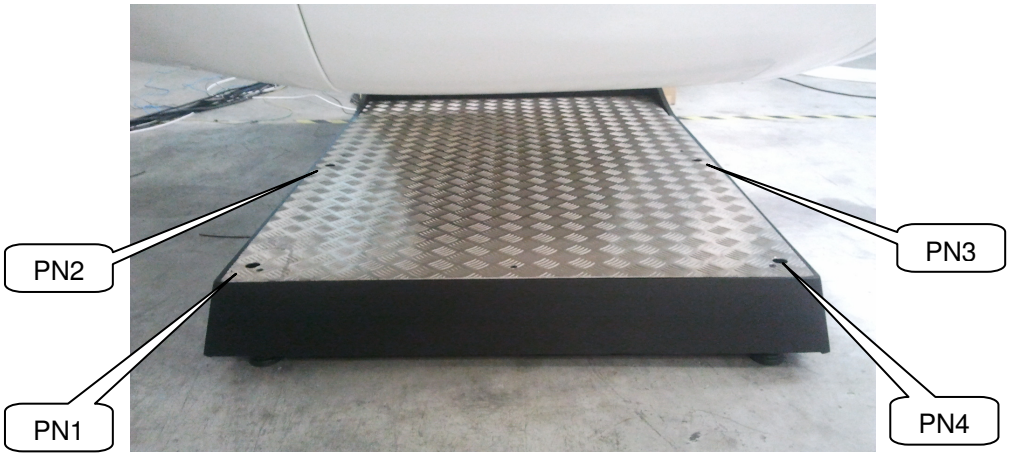
Steps to follow when taking “Flight Simulator” out of the box are as follow:

- Unscrew the 4 sides of the wooden box and the roof, leaving only the Simulator in the wooden box base
- With a knife or cutter, cut out the anti-moisture bag covering the Simulator and take it out
- Cut the metal straps that hold the Simulator to the wooden floor
- Slightly loosen the 4 screws of the top “Forks entrance cover” of the base of the Simulator and pull it out
- With an 8mm Allen key unscrew the 6 levelling feet “PN1….PN6” of the Simulator base until they are not resting on the ground
- With the help of the forklift raise the Simulator (by the “forks entrance”) to separate it away from the wooden base.
- At this point the Simulator can be placed in its definite location; there are 3 ways to do this:
    1. with its own wheels located under the base
    2. with Lift pallet truck with 1500mm forks
    3. with motorized forklift

At the time of placing the Simulator in its final location, there must be 80cm-100cm free on the back and front of the cabin, 50cm on the side of the base (forks entrance) and 140cm on the side of the cabin door.

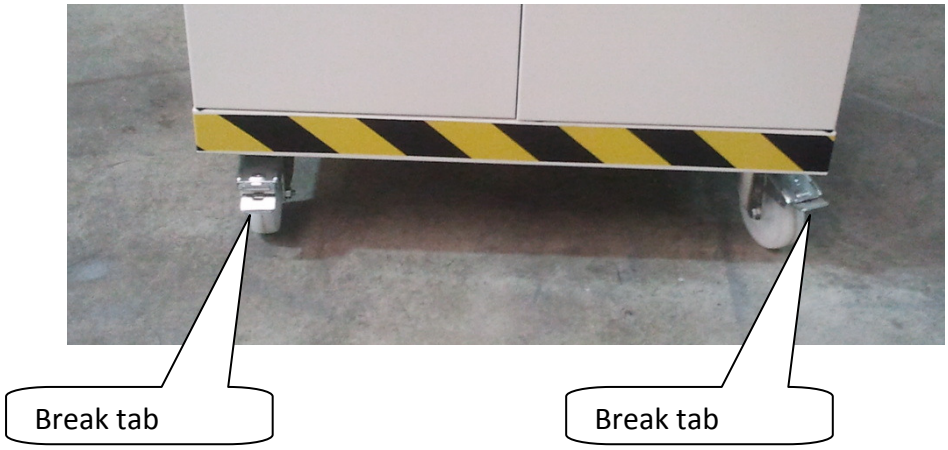






The steps to follow to remove the computer cabinet are:

- Open the front latches of the wooden box and open the door
- With the knife or the cutter break the anti-moisture bag and pull it out
- With your hands or feet press the 2 “break tabs” to unlock the breaks of the 2 frontal wheels
- With the help of the fork of the motorized forklift or Lift pallet truck, remove the Computer Cabinet from inside the box



1.1 POWER SOCKET

The power socket where the simulator OVO-04 will be connected, it must have the following features:

• 16 Amperes Circuit breaker protection.

• 30mA Residual circuit breaker protection.

• Ground (earth) protection.

• Voltage: 220VAC 50-60 Hz (The OVO-04 can operate at 110VAC with an adapter to be provided by the manufacturer).

2. IDENTIFICAT ION ELEMENTS OF SIMULATOR

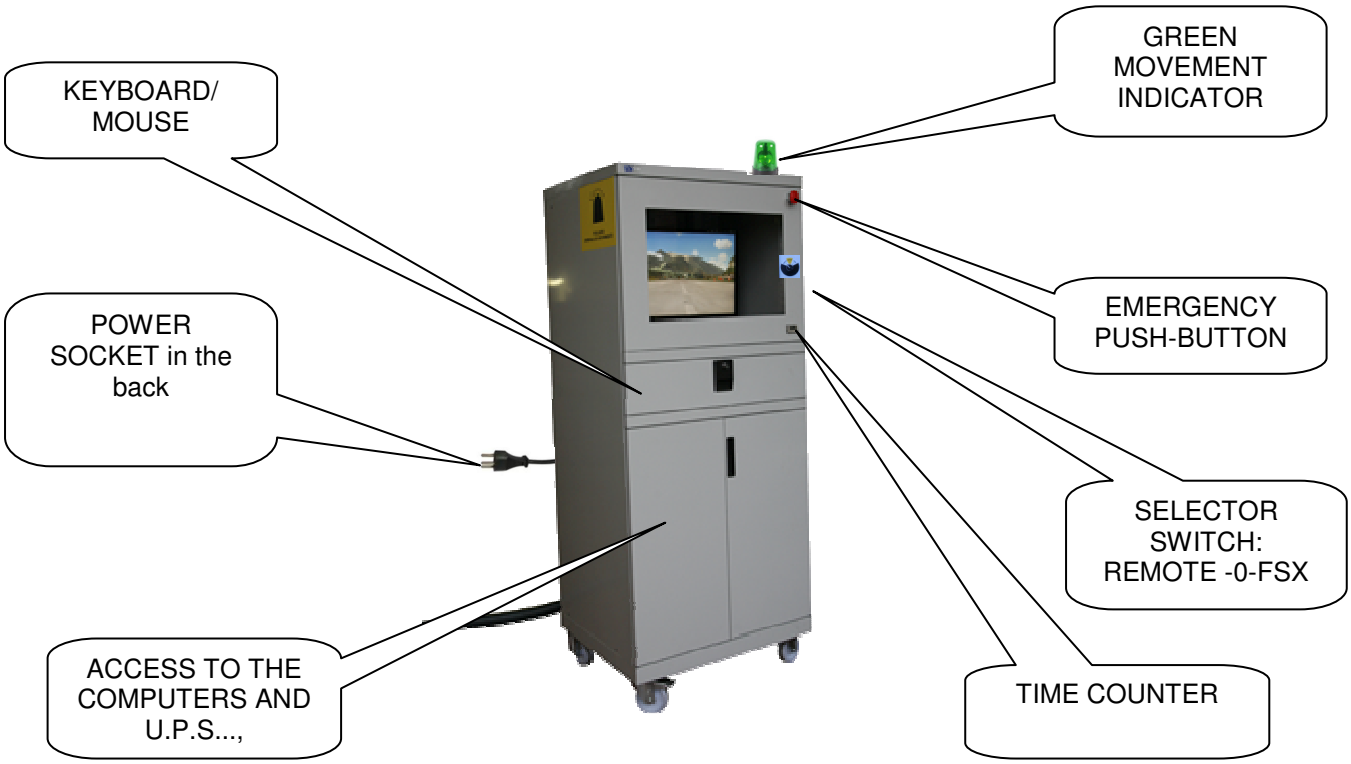
Computer Cabinet

Flight Simulator or Cabin

ACCESS DOOR TO PANEL CONTROL MOVEMENT AND PLC

PLC SCREEN

3. COMPUTER CABINET



POWER SOCKET:

This is the general plug socket of the simulator

GREEN MOVEMENT INDICATOR:

When it's activated/on it indicates that the cabin is in movement (FSX)

EMERGENCY PUSH-BUTTON:

Press only in case of emergency: where there is loss of control in the movement of the cabin and panic occurs (normally you must stop the movement through the REMOTE SELECTOR-0-FSX) THE CABIN WILL BE DISCONNECTED OF THE ENERGY NEEDED FOR ITS MOVEMENT)

To restore the emergency push-button to its normal position, you should rotate it to the right and pull it out at the same time.

SELECTOR SWITCH: REMOTE-STOP-FSX

- STOP: Stops the movements of the cabin (this will level itself if tilted /inclined)
- FSX: The movement of the cabin will interact with simulation software (FSX)
- REMOTE: The movements of the cabin will be controlled through the keyboard of the PLC or from the remote control.

TIME COUNTER

As shown in image tag. The 3 digits on the right indicate minutes (with 1 decimal), the left digits indicate hours.

It counts the time spent, provided that the magnetos of the aircraft are activated and the Simulator ready to fly
(After ACTIVATION PROCEDURES)

4. PLC & TROUBLESHOOTING

PLC (Control Logic Programs) is responsible for managing the movements of the cabin. To manage the movements, the PLC has connected the following devices.

INPUT

- Movement sensors and limit switches of motor
- Emergency push-button and switches of the cabin and of the computer cabinet
- Sensor switches door cabin open/closed
- Serial communication, to know the aircraft attitude in the "Microsoft Flight Simulator"

OUTPUT

- Roll and Pitch axis engines, and Roll axis blocking system
- Lights "motion", "presency", "fault"

ON SCREEN INFORMATION (to visualize this information correctly, you must first activate the Simulator through the "activation procedures")

Using the keys F1 and F2 you can access all the titles on the PLC screen menu

- By pressing F1 you will access all titles in ascending order
- By pressing F2 you will access all titles in descending order

SCREEN DESCRIPTION

- ANALOG INPUTS: to read the position of the cabin the range of these values is between 500 and 1500, 1000 means cabin levelled
- LOCK CABIN CALIBRATE: *2 it is used to calibrate the lock position of roll movement
- PITCH SENSOR CALIBRATE: *2 it is used to calibrate the pitch motion sensor.
- ROLL SENSOR CALIBRATE: *2 it is used to calibrate the roll motion sensor.
- DIGITAL INPUTS 1 & DIGITAL INPUTS 2: In these screens you can visualize the condition of the digital inputs of the PLC

- NOT MOTION & FAULTS **(troubleshooting):** This is the most important screen for the OVO-04 user. It displays all the messages of errors that prevent the correct functioning of the full motion system.

MESSAGE	MOST COMMON CAUSES	SOLUTION
MOTION SW CABIN	"MOTION" switch inside the cabin on "OFF"	Switch the "MOTION" switch to "ON" inside the cabin
FSX SW (SUPERVISOR)	"REMOTE-STOP-FSX" switch on the computer cabinet is not switched to "FSX"	Switch the "REMOTE-STOP-FSX" switch of Computer Cabinet to "FSX"
MICROSOFT FSX	The program "PLC" of the main computer PC1 is deactivated Microsoft Flight Simulator X is on pause	Activate the program "PLC" on main computer. Take the pause off Microsoft Flight Simulator X
AUTOLEVEL	The cabin is unable to level itself off, maybe this is due to a person sitting of the edge of the door	Close the door of the Simulator and switch the switch from the Computer Cabinet from "FSX" to "STOP" and wait till error message disappears. If this does not happen contact to the Technical Department
ROLL MOTOR: XX	Overload roll motors. XX number, indicate the number of times it has occurred since the last activation of the simulator	Switch the switch from the Computer Cabinet "FSX" to "STOP" and again to "FSX", the error message will disappear. If it happens often contact the Technical Department.
PITCH MOTOR: XX	Overload pitch motors. XX number, indicate the number of times it has occurred since the last activation of the simulator	Switch the switch from the Computer Cabinet "FSX" to "STOP" and again to "FSX", the error message will disappear. If it happens often contact the Technical Department.
CABIN DOOR	The cabin door is opened or not closed properly	Close the cabin door
ACROBATIC	Over a short period of time the movements of the cabin have been very sharp/abrupt	Continue the flight, for at least 2 minutes, the cabin will re-establish back to its normal function
CABIN LOCKED	The automatic system of Roll movement blockage is activated	Put the cabin into operation mode by following the "PROCEDURE OF ACTIVATION" when the pilot puts the "MOTION" switch inside the cabin to "ON", this message should disappear. If otherwise consult chapter number 5, where you will find the way to unlock the roll motion manually. If not contact the Technical Department.
PRESENCY	A person, animal or object has encroached the restricted area of the Simulator and there is a danger of collision or crushing (only in the Simulators where the customer has installed this system)	Remove the obstacle, rotate the switch "MOTION" of the inside of the cabin from "ON" to "OFF" and quickly again to "ON", the message should disappear.
EMERGENCY	One of the emergency push-buttons is pressed	Pull the emergency push-button from inside the cabin and Computer Cabinet. To accomplish this you must pull and turn clockwise at the same time the red push-button

OTHER POSSIBLE ERRORS OF THE FLIGHT SIMULATOR

PROBLEM	SOLUTION
The cabin has got stuck to one side and it will not move.	Level the cabin manually. To do this look at chapter number 5 where you will find a way to move the cabin with the remote control or keyboard. If you are unable to move the cabin or the error message occurs again, contact the Technical Department.

PROBLEM	MOST COMMON CAUSES	SOLUTION
The aircraft engine won't start	The fuel tank switch is on OFF	Switch the switch of fuel on R or L or BOTH
	The engine battery is uncharged	Restart the Flight on PC1
	The mixture fuel control is on "poor" position	Change mixture position to "rich"
The sound of the Aircraft engine does not work	The "Q" key has been pressed on main computer	Press the "Q" key again from the main computer

- FSUIPC INPUTS: Shows the offsets that the PLC receives from the PC1 serial communication, this offsets belong to the aircraft FSX attitude. To check that there is good communication the “roll” and “pitch” offsets must be closed to 1000 and “seconds” must follows from the clock in the FSX aircraft.
- MAINTENANCE: *2 screen for maintenance task
- PITCH MOTOR: via a gauge, you can see the analogue signal that the PLC sends to the card that controls the speed of pitch engine
- ROLL MOTOR: via a gauge , you can see the analogue signal that the PLC sends to the card that controls the roll engine

*2-> (only for maintenance technicians)

5. REMOTE MOVEMENT OF CABIN

To facilitate the task of maintenance and cleaning, you can move the cabin with a remote control in any direction.

To transport the Simulator, you can lock the system of roll.

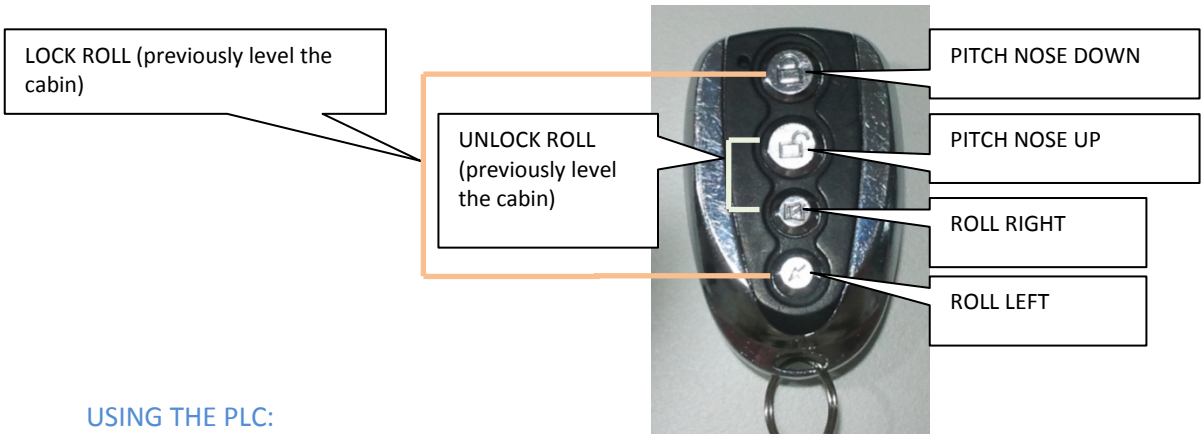
To carry it out you need to follow the steps below

- Plug the Computer Cabinet to a 230v wall socket
- Activate the S.A.I.(U.P.S.)
- Put the switch of the Computer Cabinet to "REMOTE"

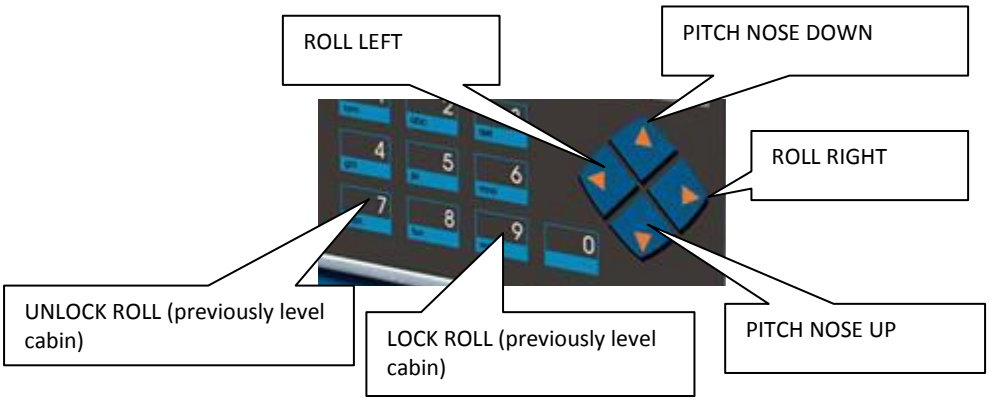
If the Simulator is already activated, you must only put the switch on the Computer Cabinet to "REMOTE"

There is two ways to move the Cabin

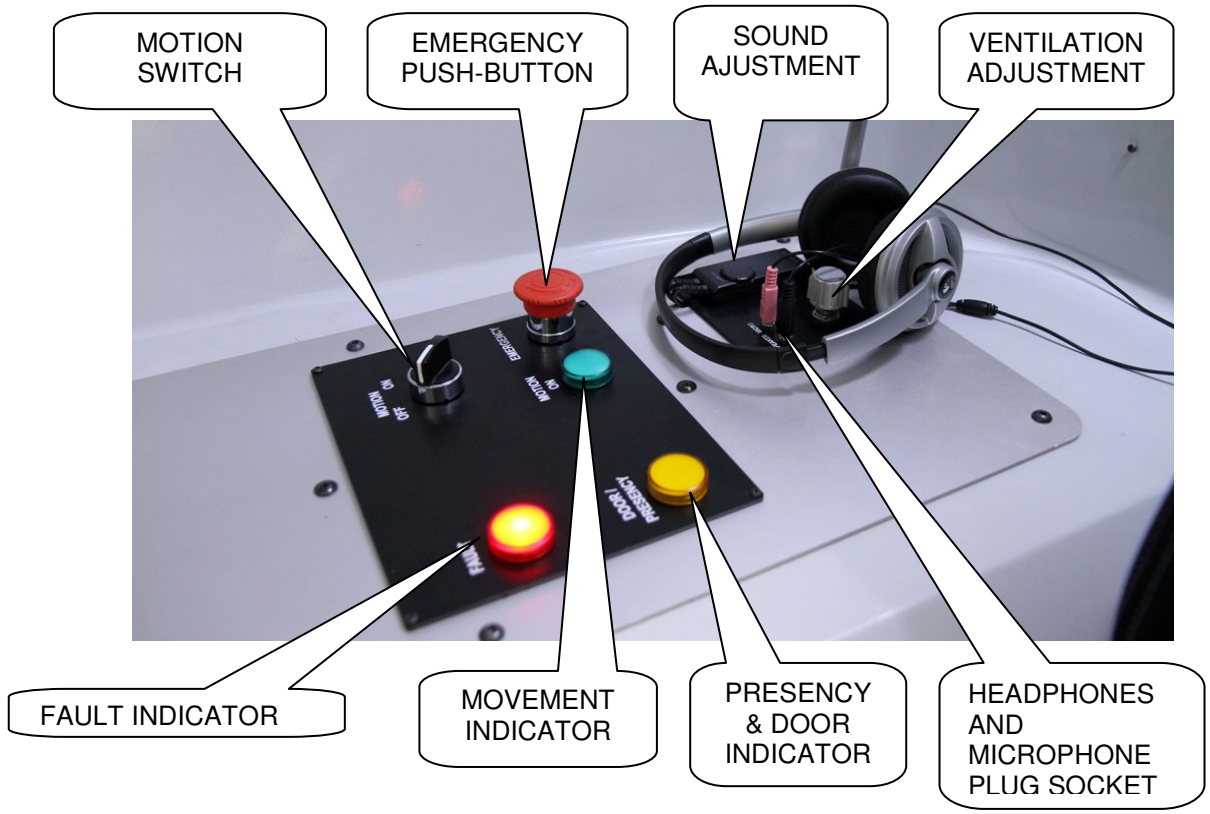
USING THE REMOTE CONTROL:



USING THE PLC:



6. LATERAL CONTROL PANEL



NOTE: for all these controls to have their effect, the Simulator must be activated (look at Simulator manual ACTIVATION PROCEDURE)

MOTION SWITCH:

For this switch to operate the REMOTE-0-FSX in the Computer Cabinet must be on FSX

- ON: Activates movements of the cabin by interacting with FSX
- OFF: The cabin levels itself of (*1) to make the entry/exit of the Pilots, after the movement is disabled.

EMERGENCY PUSH-BUTTON: Press only in case of emergency: where there is loss of control in the movement of the cabin and panic occurs (normally you must stop the movement through the REMOTE SELECTOR-0-FSX) THE CABIN WILL BE DISCONNECTED OF THE ENERGY NEEDED FOR ITS MOVEMENT)

SOUND AJUSTMENT: Controls the volume of the engine sound, system of the aircraft and the ambiance in which it is allocated.

VENTILATION AJUSTMENT: Controls the ventilation of the cabin (fans situated in on the top in front of the pilot) (*3)

FAULT INDICATOR:

- OFF: No error occurs
- FAST FLASHING: The movement of the cabin stops after receiving an excess of harsh movements
- NORMAL FLASHING: In this case the Simulator will not work for some reason. Check the PLC screen in the control panel to determine the reason. (*2)

MOTION INDICATOR:

- OFF: The movements of the cabin are not interacting with FSX
- ON: The movements of the cabin are interacting with FSX

"PRESENCE" INDICATOR:

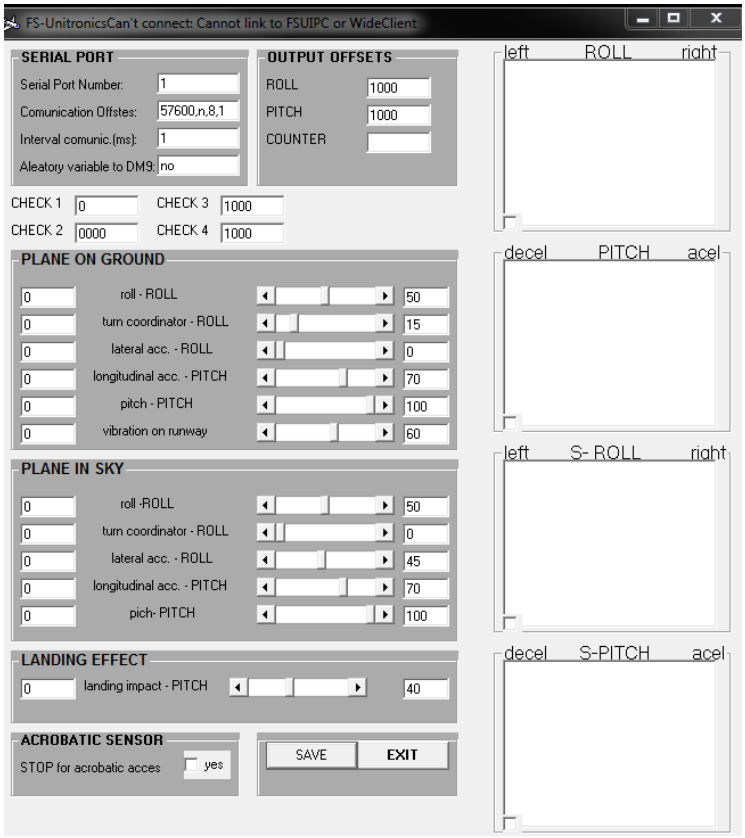
- OFF: There is no sign of human presence, animal or some object
- FIXED: Indicates that during the flight some person or animal has opened the door of the perimeter or Simulator Security zone.(only if you have installed a security perimeter with a sensor in its door) The movement of the cabin will stop and will remain stopped until the door from the security perimeter has been closed and the pilot gives the order of movement with the "MOTION" switch (the switch must be deactivated and activated within 1 second to reestablish the movement of the cabin)

MICROPHONE AND HEADPHONES PLUG SOCKET:

These sockets are used in the Simulator that has installed the "communication with instructor" system.

(*1) will only level itself if the cabin is not levelled
(*2) See chapter 4 (PLC & troubleshooting) from this manual
(*3) some aircrafts with switches (VENT CAB) in the instrument panel must switch ON these buttons in order to activate ventilation

7. SOFTWARE ADJUSTMENT OF CABIN MOVEMENT (FS-Unitronics)



The access to this software is through the icon “PLC” on the main computer screen “PC1”. It allows us to adjust the movement sensitivity. This program acquires information from Microsoft Flight Simulator via FSUIPC market software and converts the information received to values sent to PLC (these values are showed in the FSUIPC INPUTS PLC screen, see chapter 4). In the OVO-04 with S. N. upper than 110019, this software runs automatically when you turn on the computer. It is important that this software is always active when the FSX is in operation. In case of restarting FSX this software also needs to be restarted (only in the OVO-04 with S.N. 110015 to 110019).

By following these instructions, the user can modify the sensitivity of the movement of the cabin based on attitude of the FSX aircraft.

“0” figures equals null sensitivity, a “100” figures is equivalent to maximum sensitivity

MENU “PLANE ON GROUND”: These adjustments take effect when the wheels of the aircraft touch the ground

CONCEPT	TYPE OF ADJUSTMENT	DEFAULT VALUE
Roll – ROLL	Roll cabin sensitivity depending on roll attitude	50
Turn coordinator – ROLL	Roll cabin sensitivity depending of the “turn coordinator” indicator	15
Lateral acc. – ROLL	Roll cabin sensitivity depending of the lateral acceleration	0
Longitudinal acc. – PITCH	Pitch cabin sensitivity depending on the longitudinal acceleration	70
Pitch – PITCH	Pitch cabin sensitivity depending on pitch attitude	100
Vibration on runway	Sensitivity cabin vibration when the aircraft is rolling on the runway	60

MENU “PLANE IN SKY”: These adjustments take effect while the plane is flying

CONCEPT	TYPE OF ADJUSMENT	DEFAULT VALUE
Roll – ROLL	Roll cabin sensitivity depending on roll attitude	50
Turn coordinator – ROLL	Roll cabin sensitivity depending of the “turn coordinator” indicator	0
Lateral acc. – ROLL	Roll cabin sensitivity depending of the lateral acceleration	90
Longitudinal acc. – PITCH	Pitch cabin sensitivity depending on the longitudinal acceleration	70
Pitch – PITCH	Pitch cabin sensitivity depending on pitch attitude	100

MENU “LANDING EFFECT”: This adjustment takes effect when the plane is landing

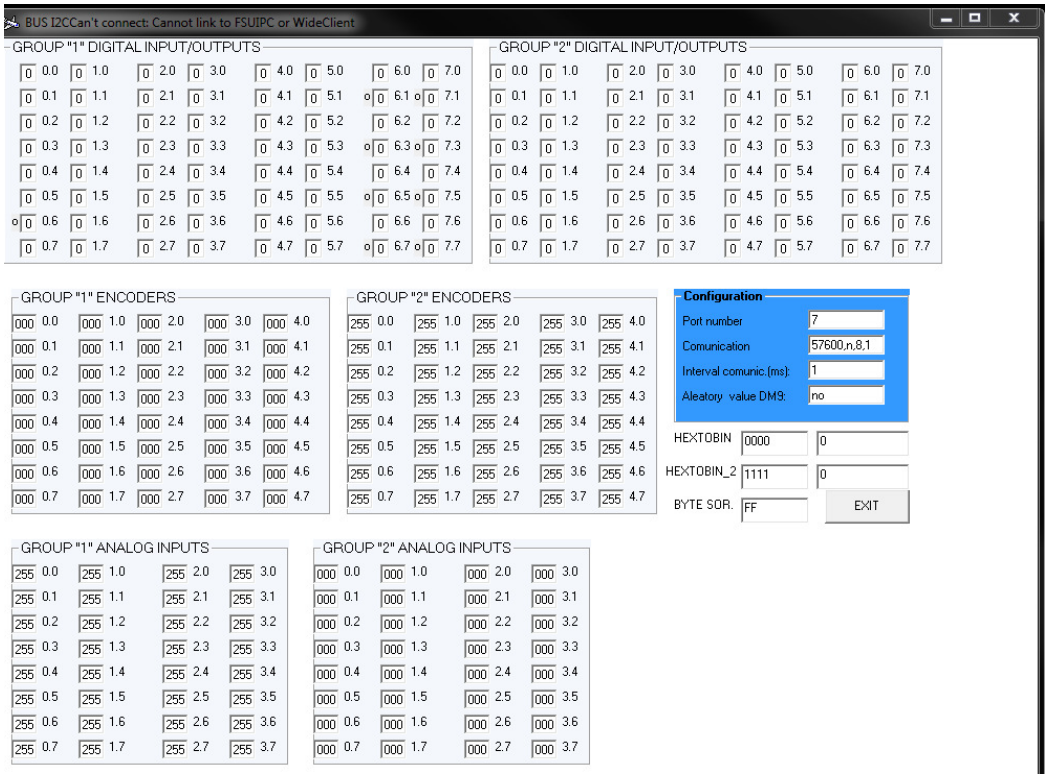
CONCEPT	TYPE OF ADJUSTMENT	DEFAULT VALUE
Landing impact - PITCH	Cabin pitch sensitivity during the impact of the aircraft when the wheels touch the ground	30

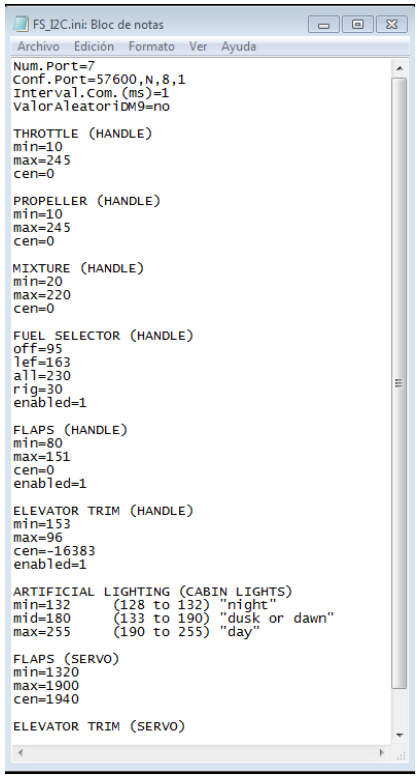
After changing any value it is important to press the “SAVE” button to save the new settings

OTHER INFORMATION OF INTEREST:

- SERIAL PORT: Communication parameters Serial computer port – PLC
- OUTPUT OFFSETS: position offsets that are sent to the cabin. "1000" = cabin levelled
- ACROBATIC SENSOR and 4 GRAPHICS ON THE RIGHT SIDE: only for maintenance task

8. SOFTWARE ADJUSTMENT OF CONTROL HANDLES AND LIGHTING (I2C)





Access to this software is via the main computer "PC1" or remote "PC2" “I2C” icon. Amongst other tasks, it allows us to view the status of the switches, rotary and sliding controls of the instrument panel (in case of maintenance tasks).

It is important that this software is always active when FSX is running; In case of restarting FSX this software also needs to be restarted.

PROGRAM SETTING AT USER LEVEL:

- Configuration
  - Port number: This value is always set at the factory, this value shows the number of the virtual "serial port" that the computer has generated to receive signals from the cockpit. If when you satart the software “I2C” of the PC1, the message “nº de Puerto no válido” appears, this value may need to be modified.

    To modify the correct value it is necessary to click with the right button the desktop icon “Computer”, choose “Properties” click on “Device Manager” and then double click in “Ports (COM & LPT)" you will see a port called “USB Serial port (COMnº)” where “nº” it is the number that must show on Port number:.

To change this value you must stop the program “I2C”, then you will access C:\ program files (x86)\FSOmron and open the file FS_I2C.ini with the text editor. In “Num.port=nº” you will put the nº of the “USB Serial port” and you will save the changes. At this moment you can restart the software “I2C”, the message error should not appear.

- ARTIFICIAL LIGHTING (CABIN LIGHTS), in the file “C:\ program files (x86)\FSOmron\FS_I2C. ini”

Allows us to adjust the levels of lighting in the cabin (light bulbs at the rear of pilot).

The Microsoft Flight Simulator recognises 4 different time intervals:

- Dawn, day, dusk, night

Through this menu you can give 3 different levels of lighting in the cabin

variable	Time interval	Defect figures	Interval
min	Night	132	128 a 132
mid	Dawn and /or dusk	180	133 a 190
max	Day	255	190 a 255

In case of modifying any figures make sure changes are saved and restart the”I2C” software.

9. SECURITY SYSTEMS

9.1 SECURITY DETECTOR SAFETY PERIMETER: To prevent the movement of the cabin hitting or crushing a person or animal, the OVO-04 can be located within a room or security perimeter that can only be accessed through a door. This security perimeter or room should be rectangular, there must be 80cm-100cm free on the back and front of the cabin, 50cm on the side of the base (forks entrance) and 140cm on the side of the cabin door.

It is necessary to add to the door a position sensor switch (N.C.) “normally closed” so that when an individual opens the door this sensor opens its electronic contact. The OVO-04 is ready to be connected to the sensor via cable (nº24) located at the base (see picture below). If you open the door the cabin stops the movement and the “Presency” indicator will switch on inside the cabin, consult “chapter 6” to find the way to restore the movement of the cabin.

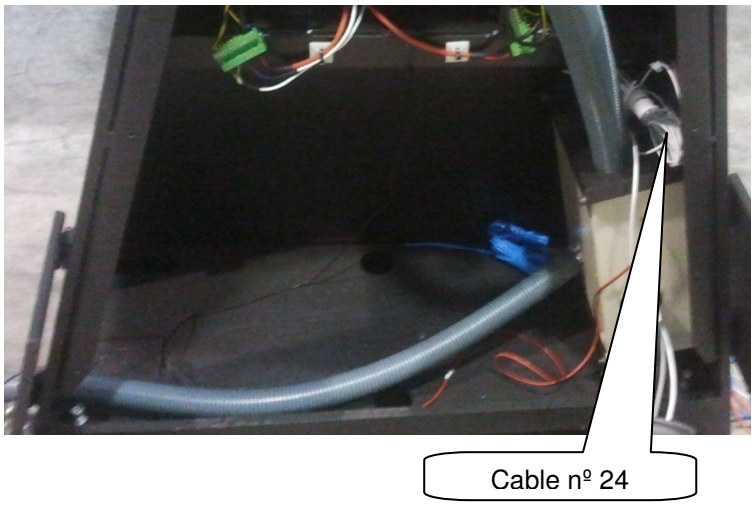


Illustration 1

Steps to follow in order to connect the OVO-04 to the door sensor:

1- Remove the cover that covers the entire base of the Simulator (illustration 1).
2- Unroll the "cable nº 24".
3- Stretch wire nº 24 passing the end through a hole at the base of the Simulator towards the door sensor.
4- Connect cable nº 24 to the sensor N.C installed in the door security perimeter.
5- Run operation tests (read chapter nº 6 - "presency" indicator)
6- Reassemble the cover that covers the base of the Simulator.

9.2 EMERGENCY PUSH-BUTTON: The OVO-04 is equipped with two emergency buttons; one is allocated inside the cabin and the other in the Computer Cabinet. THE CABIN WILL BE LEFT WITH NO SOURCE OF ENERGY FOR ITS MOVEMENT

9.3 CABIN DOOR CLOSED DETECTOR: It is a sensor that controls the position of the cabin door, the movement of the cabin only works with the FSX if the door is closed.

9.4 S.A.I (U.P.S): Is an Unit Power Supply located inside the Computer Cabinet that allows the movement of the Simulator for 5 minutes if the electrical power in your house is cut. If a cut in the electrical power in your house occurs during a flight you will have enough power to level the cabin (set "MOTION" switch to “OFF” before opening the cabin door to exit).
The movements “REMOTE” of the remote control also remains operational.

9.5 VENTILATION SYSTEM: The cabin is equipped with a total of 4 fans, 2 at the top which renew the air in the cabin, and 2 at the rear that renew the air in the interior of the mechanism or movement and monitors.
The speed of the 2 top fans can be adjusted through the lateral control panel switch “VENTILATION ADJUSTMENT”.
The 2 fans on the rear always operate at maximum performance.

9.6 ANTI ACROBATIC SENSOR: The OVO-04 features a full-motion system to transmit sensations in normal flight. In any case you must use the full-motion system for military flight simulation, sporty or acrobatic. The software system that manages the movement of the cabin is able to detect if the cabin movements are too abrupt. In this case an inner voice simulator indicates: "*security alert: Slow acrobatic movement*", if you continue flying and does not lessen the abrupt movements, the motion full system will sleep for 1 or 2 minutes, after this time the motion system will automatically establish.

10. CHANGING THE LOCATION OF THE OVO-04

The cabin of the OVO-04 weighs approximately 900kg and the Computer Cabinet weighs about 80 kg. Nevertheless the cabin is designed to be moved in an easy way through ground transport.

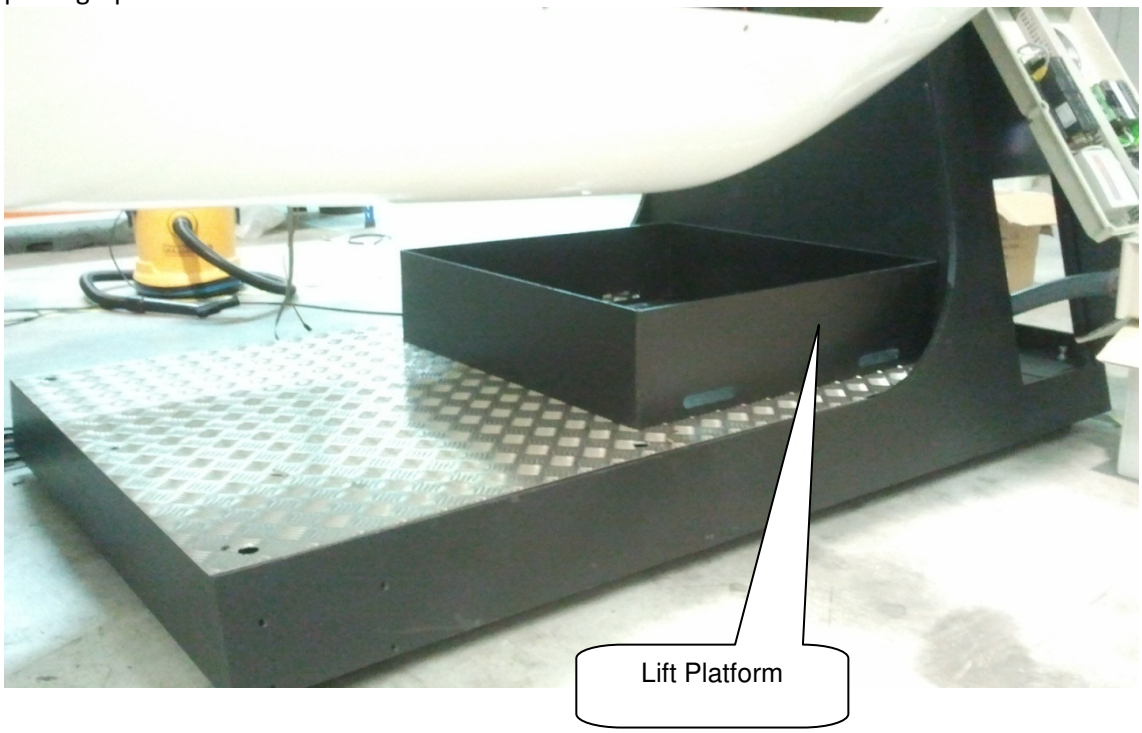
Below are a series of recommendations for moving the OVO-04

MATERIAL REQUIRED

- 1 roll of bubble wrap
- Masking tape, seal, insulation tape or American tape
- Cardboard (for protection of the equipment)
- Cardboard boxes for the computer equipments
- Truck with protection canopy of 4 or better 5m in length x 2'5m de wide x 2,2m height
- A 1500kg o more motorised forklift
- 1 set of extensions for the forks of the forklift till they reach a 130cm in length
- 1 set of Allen keys (8mm more used)
- Lift pallet truck with 150 cm fork (optional)

LIFT PLATFORM

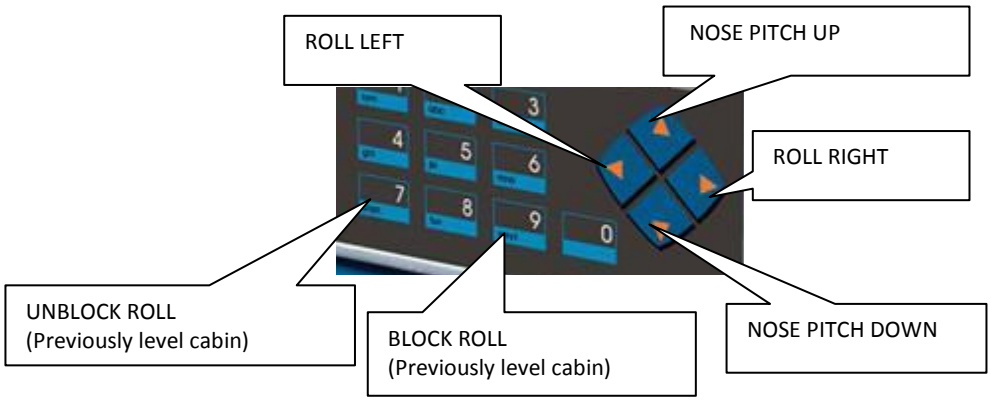
You situate the lift platform above the base of the Simulator placing it upside down, just as shown in photograph below.



CABIN BLOCKAGE

Before starting this process the Simulator must be stopped. (See "Deactivations Procedure")

- Roll Blockage:
  - Switch to the REMOTE position the switch in Computer Cabinet,
  - Activate SAI (UPS) to enable to have electricity for movement
  - With the help of the PLC keyboard you level the cabin to horizontal position(roll)
  - With the help of the PLC keyboard you block the roll (press the key for 2 seconds)
- You must ensure that the cabin has been blocked in roll: press the ROLL keys right to left and you should feel that the cabin has a short roll movement.



- PITCH BLOCKAGE:
  - With the help of the PLC keyboard you level the cabin to a horizontal position (in Pitch)
  - Get the "locking pin" from the connection box nº 1 (illustration 1)
  - Thread the "locking pin" in the "pitch axis blocking latch" (you will probably need the PLC keyboard to help us adjust the position) until the "locking pin" has gone into the hole of the OVO (illustration 2)
  - Make sure you thread to maximum

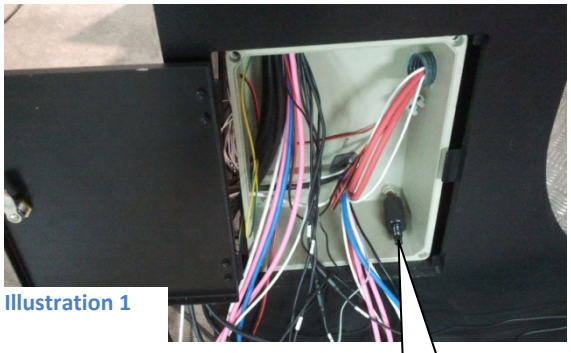


Illustration 1

Lockin pin

Illustration 2

Pitch axis blocking latch

On this wall at the base of the Simulator there is a threaded hole where you must enter the "locking pin"

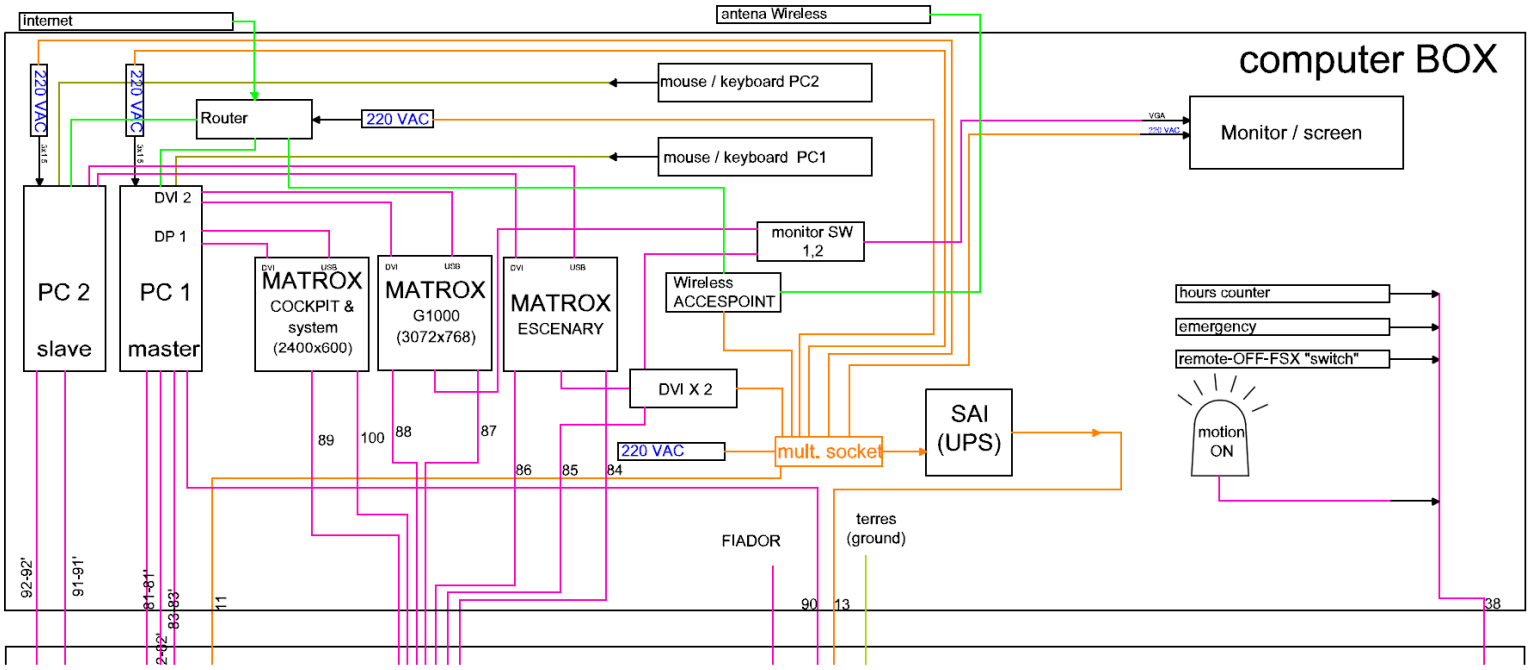
Disconnect the SAI (UPS)

DISCONNECTION OF THE COMPUTER CABINET

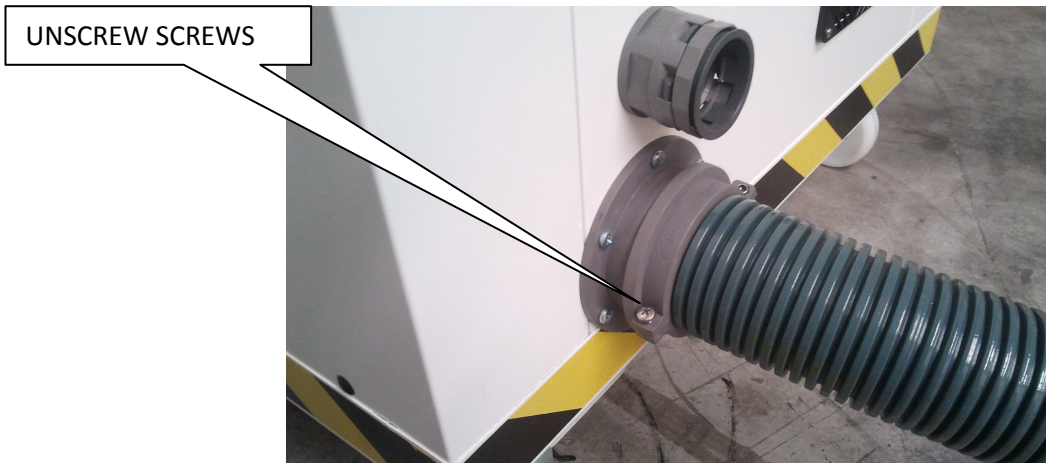
This process is to separate the OVO from the Computer Cabinet which are connected by a flexible grey tube.

- Make sure that the S.A.I (U.P.S.) and Computer Cabinet are off and unplugged from the electricity supply
- Put the brakes on the front wheels of the Computer Cabinet
- Disconnect all the wires that come through the flexible grey tube in the Computer Cabinet. Normally these cables are numbered to corresponds with the same number labelled on the device where they are connected, if in any case these numbers do not correspond, or are not labelled, use the diagram below to help remember where it was connected.

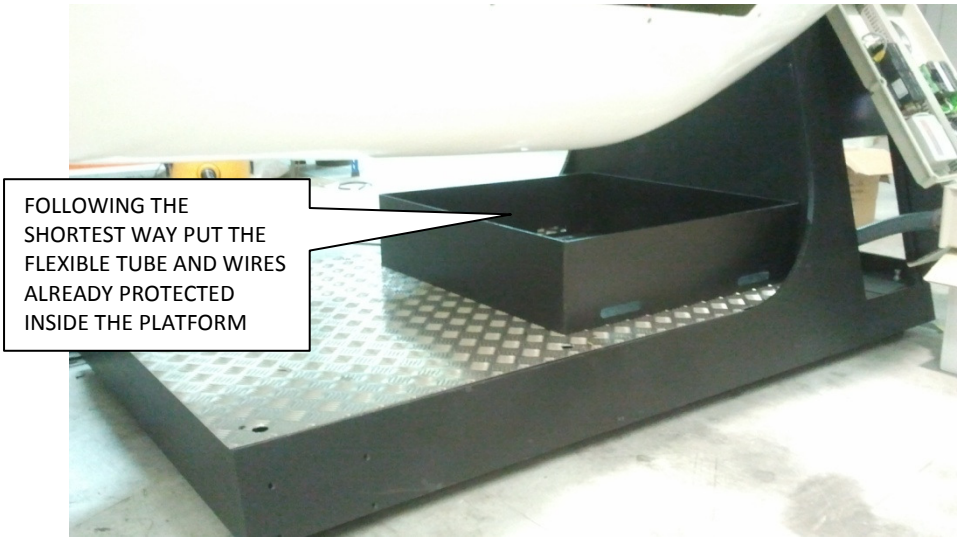
"Attention: the contents of this diagram may vary from the real one"



- When all the cables are properly disconnected, these must be well aligned, in the same direction as the flexible tube.
- In the back of the Computer Cabinet, unscrew the 2 screws that hold the flexible tube to the fitting and remove the tube from inside.



- Remove all the cables and connectors from the inside of the Computer Cabinet, be in careful not to damage anything, the cable with the large plug should be taken out last.
- Wrap a little the end of the cables and protect them with bubble wrap or something similar to protect them from crushing and humidity.
- Put the tube and the roll of cables already protected inside the “Lift Platform“ that is the upside down. You must be very careful that none of this tube is overrun or hangs from the sides of the Simulator. As with the tasks of loading and unloading it could be damaged.



- Put a thick plank of wood between the base of the simulator and the cabin to avoid bumps on the road and the task of loading and unloading may damage the pitch axis that supports the entire weight of the cabin

PREPARATION FOR THE COMPUTER CABINET

At this time the computer in the Computer Cabinet must be immobilised to avoid collision during the transport

- In the upper part, disconnect the cables from the monitor and lay it down (leaving the base of the monitor into the back of the tray cavity)
- with bubble wrap immobilize the keyboard and mouse of the sliding tray
- With the help of bubble wrap and cardboard, immobilize all the computers and S.A.I(U.P.S.). Another option is to get these equipments and put them into their carton box
- Lock the Computer Cabinet doors

If the transportation it is long haul is advisable to protect the OVO-04 cabin and Computer Cabinet with foam or in wooden boxes.

You close the doors of the cabin and Computer Cabinet with the key. At this point everything is ready to be loaded on the truck.

INSTILLATION IN NEW LOCATION

Following the unloading from the truck, you must place the cabin and Computer Cabinet in their final position, keep in mind that during the installation you are going to need a perimeter of about 80-100cm around the Simulator.

- If this is the case remove all the protection (foam) of the outside of the cabin and the Computer Cabinet.

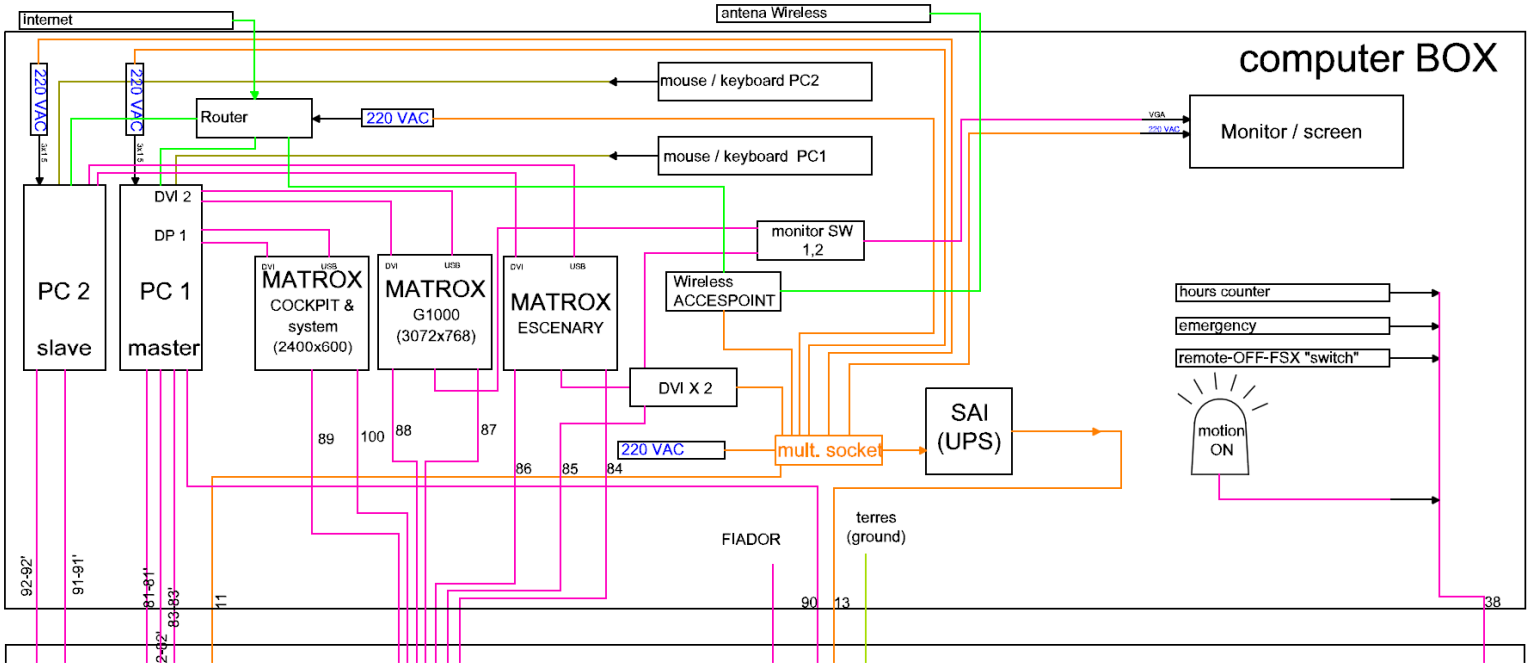
PREPERATION FOR COMPUTER CABINET

- Open the locks of the doors of the cabin and the Computer Cabinet
- Remove all the protection from inside the Computer Cabinet
- Place all the elements of the inside of the Computer Cabinet in their place
- Place the monitor on top in a vertical position and connect it

CONECTION OF THE COMPUTER CABINET

- Remove the tube and the roll of cables protected from inside of the lift platform, and lead the protected cables to the rear of the Computer Cabinet
- Remove the protection of the tips of the cables
- Put the cables inside the Computer Cabinet through the fitting located at the back, the first cable to be put inside should be the one with the large plug
- Mount the tube inside the fitting again and screw the screws
- Connect all the cables with the corresponding number, you can use table below as reference.

"Attention: the contents of this diagram may vary from the real one"

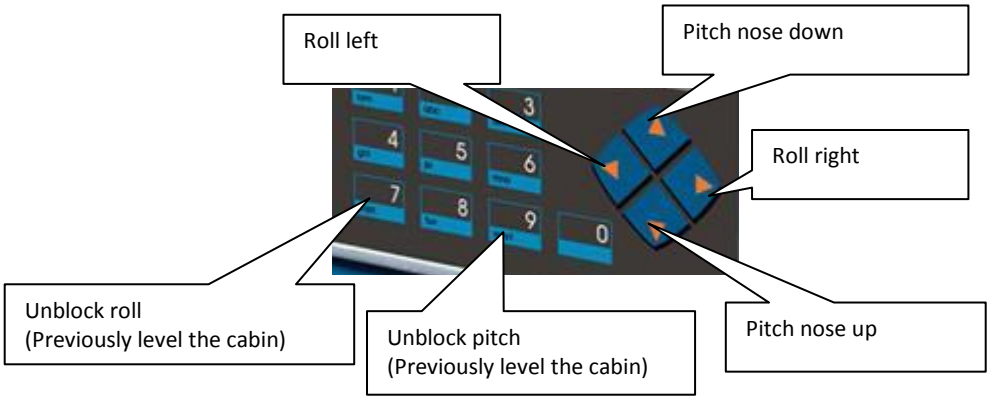


UNBLOCKING THE CABIN

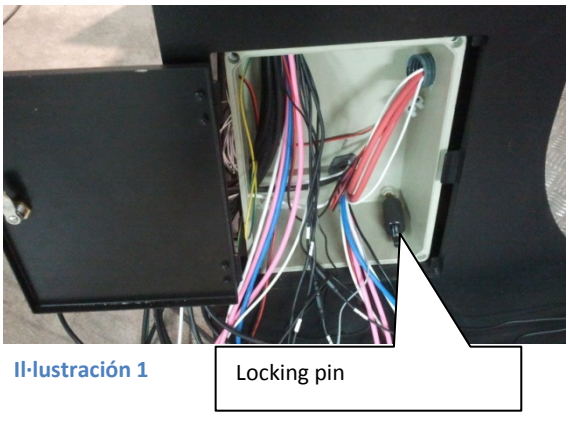
Unblock Roll:

- Put the Computer Cabinet switch on REMOTE
- Switch on the S.A.I(U.P.S.) to give power to the movement controls
- With the help of the PLC keyboard you have to level the cabin (in roll axis)
- With the help of the PLC keyboard unblock the pitch (press key number 7 for 2 seconds)

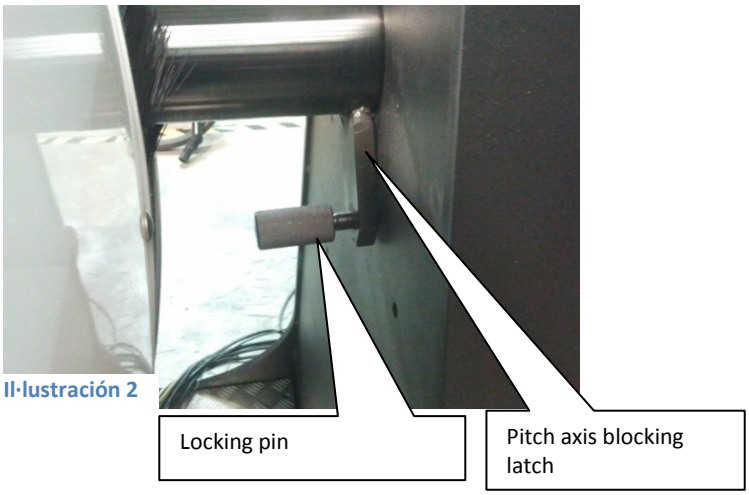
You must ensure that the cabin has been completely unblocked to allow roll. Press the buttons "roll right" and "roll left" you must observe that the cabin moves through its roll range



- Unblock Pitch:
  - Unscrew "locking pin" in the "Pitch axis blocking latch", if resistance is noticed you will need to use "Pitch" PLC keyboard keys to position the center of the "locking pin"(illustration 2)
  - Save the "locking pin" inside the connection box number 1 (illustration 1)
  - Deactivate the S.A.I (U.P.S.)



Il·lustración 1



Il·lustración 2

LIFTING PLATFORM

Situate the lift platform table at the entrance of the cabin door, to improve the entry of the people.

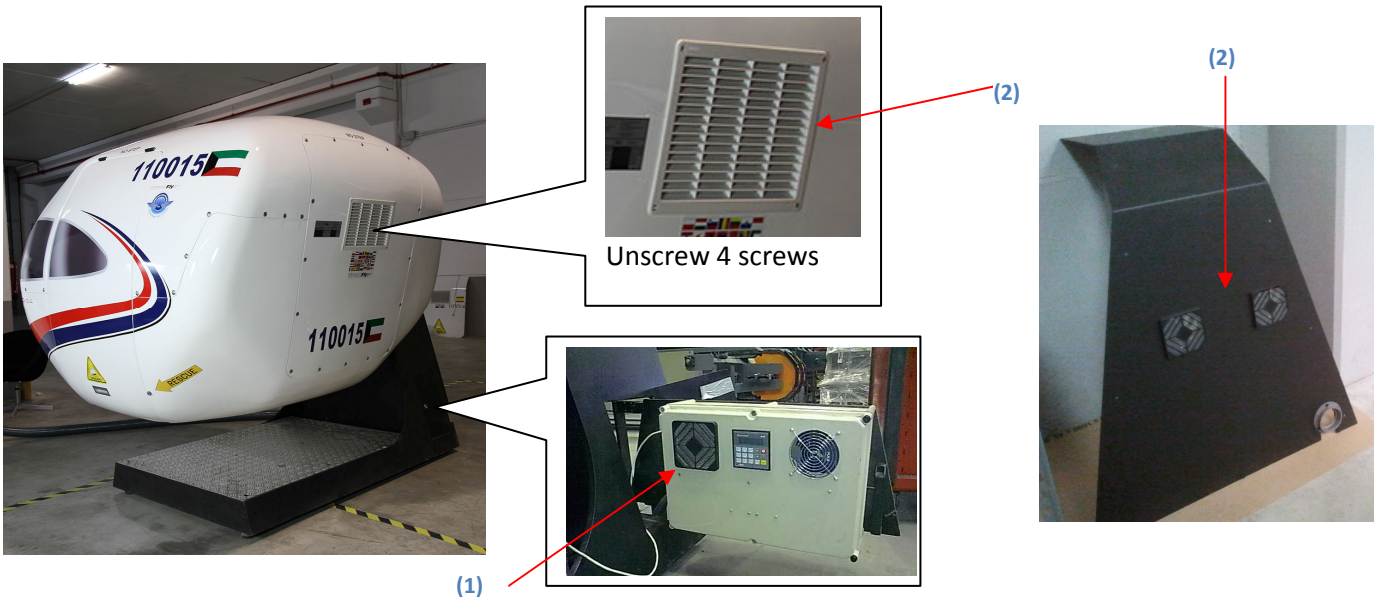
START UP

- Place the Computer Cabinet in its final position
- Leave enough space between the cabin and the Computer Cabinet to avoid collision
- Make sure that there is nothing loose in the inside of the cabin
- Following the “Procedures Manual” activate the Simulator

11. MAINTENANCE

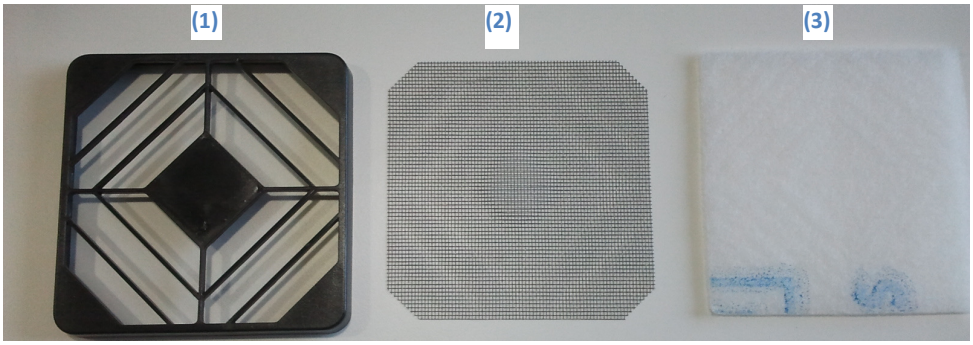
The OVO-04 is designed minimal maintenance tasks, but security and ventilation systems need to be checked periodically

Concept	Time Period	Observations
Ventilation flow	weekly	There are a total of 5 fans. In the illustrations below shows their location. Bringing a Kleenex or a paper, make sure that the fans have airflow (always flow from outside to inside).
Ventilation Filters	50 hours in use	There are a total of 5 ventilation with filters, In the illustration below you can see where are the 5 filters and a brief cleaning instructions
SAI (UPS)	6 months (no matter how many hours it has been used)	See illustration and instructions below
SAI (UPS)	Must be replaced every 3 years	The brand of this equipment is Ablerex VT 1500 PRO, 1500VA



INSTRUCTIONS FOR CLEANING OF FILTERS

- Stop de U.P.S. (see red arrow picture bellow) to ensure that the fans stop working.
- Remove the protection cover (1) pulling it with your hand.
- Clean the dust away from metal grid (2).
- If there is a filter (3) its best to take it out (this increases the airflow). Save this filter (3) for occasions in where there OVO-04 is installed in dirtier environment, such as outdoor events
- Assemble back parts (1) and (2).
- Start the UPS.
- Ensure that all fans have airflow.



SAI (UPS) INSPECTION INSTRUCTIONS

- The OVO-04 must be switched off and unplugged from the electrical power supply socket
- Activate the S.A.I (UPS)
- Turn the switch REMOTE from the Computer Cabinet
- Wait 5 minutes
- Through the remote control or keyboard of the PLC move the cabin to all sides for a minimum of 60 seconds
- Deactivate S.A.I (UPS)
- If the S.A.I. (UPS) is able to withstand 5 minutes of waiting and 1 minute of movement it means that the internal battery is in good condition

12. WHAT IS NEW IN THIS USER'S MANUAL VERSION

- Power socket features (Chapter 1).
- Dimensions room - security perimeter where to place the simulator (Chapter 1 and Chapter 9).
- New audio message for abrupt movements (Chapter 9).
- Improved maintenance (Chapter 11).
- "CE" DECLARATION OF CONFORMITY (at end of manual).